

WHAT IS CLAIMED IS:

1. A system of controlling a multimedia call in a mobile communication system,
comprising:

first and second mobile stations to initiate and respond to a multimedia call,
respectively and process a visual communication in accordance with a multimedia call service
option;

a base station/base station controller configured to set up the multimedia call
using a multimedia bypass service option after recognizing the multimedia call service option
of at least one of the first and second mobile stations;

a mobile switching center configured to set up the multimedia call using the
base station/base station controller to control the second mobile station according to the
multimedia call service option from the base station/base station controller;

radio link connecting means configured to directly connect the first and
second mobile stations while bypassing a radio link protocol after each of the first and
second mobile stations establishes a traffic channel with the base station according to the
multimedia call service option; and

means for transmitting/receiving multimedia data using a higher application
protocol of the radio link protocol to maintain a multimedia call in each of the first and
second mobile stations connected by the radio link connecting means.

2. The system of claim 1, wherein the first mobile station initiates the multimedia call in accordance with commands received from a user interface, and sets up the multimedia call using a telephone number of the second mobile station.

3. The system of claim 1, wherein data is directly communicated between the first and second stations according to the multimedia call service option without passing through an IWF or a PDSN.

4. The system of claim 1, wherein each of first and second mobile stations further comprises a packet data synchronization protocol for transmitting a frame for packet data synchronization with a counterpart mobile station.

5. The system of claim 4, wherein the packet data synchronization protocol is provided between a higher layer of a lower radio link protocol and a lower layer of a higher application protocol.

6. The system of claim 4, wherein the packet data synchronization protocol comprises a unique identifier configured to discriminate the frame of the counterpart mobile station for synchronization with the counterpart mobile station.

7. A method of controlling a multimedia call in a mobile communication system, comprising:

initiating a radio call from an originating mobile station in accordance with a receiving mobile station telephone number;

5 recognizing in a base station/base station controller a multimedia call service option transmitted from the originating mobile station;

setting up the radio call through the base station where the receiving mobile station is located using the multimedia call service option and the receiving mobile station telephone number;

10 confirming the radio call using the service option from the base station and setting up the radio call upon authorization from the receiving mobile station; and

setting up the multimedia call between the originating and receiving mobile stations after said step of setting up the radio call.

8. The method of claim 7, further comprising transmitting and receiving video data between the originating and receiving mobile stations without using an interworking function (IWF) or a packet data serving node (PDSN).

9. The method of claim 7, wherein authorization of the receiving mobile station

is provided by a user of the receiving mobile station accepting the call upon being notified of the radio call using the multimedia call service option.

10. The method of claim 9, wherein if the receiving mobile station authorizes the set up of the radio call, further comprising establishing a traffic channel based on the service option and processing a radio link protocol between the originating and receiving mobile stations and the corresponding base station in a bypass service option.

11. The method of claim 7, wherein the radio call is set-up between the originating and receiving mobile stations in accordance with a radio link protocol (RLP), and wherein the multimedia call is set-up between the originating and receiving mobile station using an application protocol higher than RLP to maintain a visual conversation which transmits a multimedia data.

12. The method of claim 7, further comprising setting up the radio call between the mobile stations in the base station/base station controller by recognizing the multimedia call service option and using a multimedia data bypass service option in setting up the multimedia call between the mobile stations.

13. The method of claim 12, wherein the multimedia data bypass service option between the originating and receiving mobile stations sets up a radio link protocol to directly connect the multimedia call without passing through an IWF or a PDSN.

14. The method of claim 7, wherein the multimedia call service communicates packet data among the originating and receiving mobile stations, the base station/base station controller, and a mobile switching center at a prescribed bit rate by using a fixed bit service option.

15. The method of claim 7, wherein the multimedia call includes packet services having a first data rate and a second data rate the second data rate being higher than the first data rate.

16. The method of claim 7, further comprising:

processing a radio link protocol between the originating and receiving mobile stations to set up the multimedia call when the multimedia call is initiated by the originating mobile station; and

connecting the multimedia call between the originating and receiving mobile stations and processing a visual communication between the stations in accordance with a higher application protocol after the radio link protocol is processed.

17. The method of claim 7, further comprising:

after setting up the radio call, processing a packet data synchronization protocol in each of the originating and receiving mobile stations to periodically transmit a packet data synchronous frame;

5 confirming whether to receive the packet data synchronous frame transmitted from a counterpart station; and

bypassing the packet data synchronization protocol to initiate a higher image application protocol if the packet data synchronous frame is received from the counterpart station.

18. The method of claim 17, wherein the packet data synchronous frame comprises a unique identifier for mutual synchronization between the originating and receiving mobile stations so that the counterpart can discriminate the frame.

19. The method of claim 17, wherein the packet data synchronization comprises:

initiating the synchronization protocol of the originating mobile station to standby to receive the synchronous frame from the counterpart station after the radio call of the originating station is initiated;

5 initiating the synchronization protocol in the receiving mobile station to transmit the synchronous frame to the originating station after the radio call of the receiving station is set up;

 receiving in the originating station the synchronous frame and transmitting a response frame to the receiving station; and

10 receiving in the receiving station the response frame transmitted from the originating station.

20. The method of claim 17, further comprising transmitting multimedia data between the originating and receiving mobile stations without using an IWF or a PDSN.

21. A system of controlling a multimedia call in a mobile communication system, comprising:

 first and second mobile stations to initiate and respond to a multimedia call, respectively and process multimedia communications in accordance with a multimedia call service option;

5 a base station/base station controller configured to set up the multimedia call using a multimedia bypass service option in response to the multimedia call service option of at least one of the first and second mobile stations; and

10 a mobile switching center configured to set up the multimedia call using the base station/base station controller to control the second mobile station according to the multimedia call service option from the base station/base station controller, wherein the first mobile station perform multimedia communications with the second mobile station over the set-up multimedia call without an interworking function (IWF) or a packet data serving node (PDSN).

22. The system of claim 21, wherein data is directly communicated between the first and second stations according to the multimedia call service option.

23. The system of claim 22, wherein the multimedia call is set-up between the originating and receiving mobile station using an application protocol higher than a radio link protocol.

24. The system of claim 21, wherein each of first and second mobile stations further comprises a packet data synchronization protocol for transmitting a frame for packet data synchronization with a counterpart mobile station.

25. The system of claim 24, wherein the packet data synchronization protocol is provided between a higher layer of a lower radio link protocol and a lower layer of a higher application protocol.

26. The system of claim 24, wherein the packet data synchronization protocol comprises a unique identifier configured to discriminate the frame of the counterpart mobile station for synchronization with the counterpart mobile station.

27. A method of controlling a multimedia call in a mobile communication system, comprising:

setting up a radio call from an originating mobile station to a receiving mobile station by transmitting a multimedia call service option to a base station/base station controller;

setting up a multimedia call between the originating and receiving mobile stations after setting up the radio call in accordance with the multimedia call service option; and

performing multimedia communication between the originating mobile station and the receiving mobile station without an interworking function (IWF) or a packet data serving node (PDSN).

28. The method of claim 27, wherein the radio call is set-up between the originating and receiving mobile stations in accordance with a radio link protocol (RLP), and wherein the multimedia call is set-up between the originating and receiving mobile station using an application protocol higher than RLP to maintain multimedia communication so as to transmit a multimedia data.

29. The method of claim 27, further comprising setting up the radio call between the mobile stations in the base station/base station controller by recognizing the multimedia call service option and using a multimedia data bypass service option in setting up the multimedia call between the mobile stations.

30. The method of claim 29, wherein the multimedia data bypass service option between the originating and receiving mobile stations sets up a radio link protocol to directly connect the multimedia call.

31. The method of claim 27, further comprising:
processing a packet data synchronization protocol in each of the originating and receiving mobile stations to periodically transmit a packet data synchronous frame after setting up the radio call;

5 confirming whether to receive the packet data synchronous frame transmitted from a counterpart station; and

bypassing the packet data synchronization protocol to initiate a higher image application protocol if the packet data synchronous frame is received from the counterpart station.

32. The method of claim 31, wherein the packet data synchronization comprises:

initiating the synchronization protocol of the originating mobile station to standby to receive the synchronous frame from the counterpart station after the radio call of the originating station is initiated;

initiating the synchronization protocol in the receiving mobile station to transmit the synchronous frame to the originating station after the radio call of the receiving station is set up;

receiving in the originating station the synchronous frame and transmitting a response frame to the receiving station; and

receiving in the receiving station the response frame transmitted from the originating station.